

**Further Site Investigation Report
18155 Sonoma Highway
Boyes Hot Springs, California**

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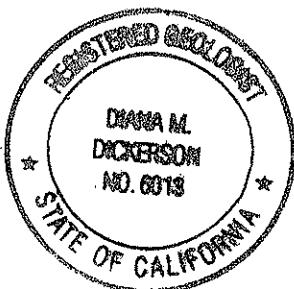


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1.0 INTRODUCTION

This report presents the results of the on-site drilling for further site investigation for the site located at 18155 Sonoma Highway (Plate 1) by Brunsing Associates, Inc. (BAI). This work was performed as proposed in BAI's "Workplan for Further Site Investigation," dated June 21, 2004 and approved by the Sonoma County Department of Health Services (SCDHS-EHS) in their correspondence dated July 14, 2004.

2.0 SITE HISTORY

Standard Oil built and occupied a gasoline service station with underground fuel tanks in the center of the property in the mid-1940's. The site was used as a service station for an auto dealership/repair shop until its closure in 1965, according to a Van Houten Consultants, Inc. (Van Houten) report titled, "Discharge Evaluation for Removal of Buried Fuel Tanks," dated December 22, 1986. In the December 1986 report by Van Houten, the Site Plan indicates that the site initially contained six underground storage tanks: four fuel tanks (three 2,000-gallon tanks and one 5,500-gallon tank), a 500-gallon waste oil tank, and a concrete septic tank. The service station pump island was located on the west side of the site, adjacent to Sonoma Highway. According to Ms. Millie Gallo, a pump station was also present on the easterly side of the site, primarily for family use. In December 1986, Van Houten reported that the fuel tanks had not been in use for 20 years, and that the waste oil tank had not been used for six years.

The fuel tanks were emptied of liquid on May 21, 1986 by Fuel Oil Polishing Company-Bay Area of Sonoma, California, as stated in Van Houten's report titled "Quarterly Ground Water Sampling and Downgradient Hydrogeologic Investigation," dated April 30, 1993. Two soil borings were drilled on June 5, 1986 to the northeast and southwest of the fuel tanks; the soil samples were analyzed by Anatec Laboratories. The analytical results indicated that the soil samples from boring 1 contained none of the analytes. The soil samples collected from boring 2 contained total petroleum hydrocarbons (TPH) as gasoline concentrations at 530 parts per million (ppm) at 7 feet and 14 ppm at 12 feet.

The tanks were removed from two excavations on October 27, 1986 by Hammond Construction of Sonoma, California. The tanks were hauled away from the site by H&H Ship Service of San Francisco, California. Samples collected from the volcanic bedrock below the gasoline tanks ranged in concentrations from 18 to 390 ppm of TPH as gasoline. Volcanic bedrock samples collected from below the waste oil tank were reported to contain 22 to 760 ppm of "total heavy hydrocarbons".



Composite samples from the excavated materials contained concentrations ranging from 440 to 890 ppm of TPH as gasoline. The excavated materials were stockpiled on site and were fenced and aerated for approximately 4 months. According to Van Houten's April 30, 1993 report, the material was returned to the excavation, upon approval by Mark Sullivan of the SCDHS-EHD, and additional clean fill was imported to bring the excavation up to grade on April 25, 1987.

Van Houten prepared an "Initial Hydrogeologic Investigation" report, dated April 15, 1991. The report provides a well survey for the area, a discussion of the drilling of borings 1 and 2, and the installation of groundwater monitoring wells MW-1 through MW-4.

Soil samples collected during the drilling of the borings and well borings were analyzed for TPH as gasoline, TPH as diesel, TPH as motor oil, non polar oil and grease, benzene, toluene, ethylbenzene, and xylenes (BTEX), chlorinated hydrocarbons, organic lead, and for five metals (nickel, cadmium, chromium, lead and zinc). The results of the soil analyses indicated that petroleum hydrocarbon contamination in soils existed at monitoring well MW-1 at six and eleven feet below ground surface (bgs), and in boring 1 at 5 feet bgs. No chlorinated hydrocarbons or metals greater than the total threshold limit concentrations were reported.

Quarterly groundwater monitoring and monthly groundwater elevation measurements were initiated at the site in March 1992; an initial groundwater monitoring round was also performed in March 1991 after the well installations. The results of the groundwater monitoring are provided in Van Houten's report titled, "Quarterly Groundwater Sampling and Downgradient Hydrogeologic Investigation." The groundwater analytical results reported between March 1991 and March 1993 indicate that the highest levels of petroleum hydrocarbons were occurring in monitoring well MW-1, with 400 parts per billion (ppb) of TPH as gasoline as the highest concentration.

In April 1993, approximately 700 cubic yards of contaminated soil were removed from the site. The area of the excavation was along the west side of the property, in the vicinity of monitoring well MW-1, which was abandoned. The depth of the soil excavation ranged from 20 feet at the northeast corner to 9.5 feet along the west wall to 5 feet at the south end of the excavation. Details of the soil excavation are provided in Van Houten's report titled, "Soil Excavation," dated June 14, 1993.

One groundwater monitoring event was completed in September 1993, after removal of the excavated soil. The next groundwater monitoring event occurred on January 1999, with monitoring continuing to the present. In December 2001, BAI drilled four soil



borings (BB-1 through BB-4). The results of the drilling activities are discussed in BAI's report titled, "Soil and Groundwater Investigation," dated July 17, 2002.

As part of BAI's report dated July 17, 2002, BAI reviewed the sensitive receptor survey prepared by Van Houten, and sampled the Sonoma Mission Inn's 1,000-foot deep geothermal supply well. The sample from the Sonoma Mission Inn's geothermal well reportedly did not contain petroleum hydrocarbon concentrations above the laboratory reporting limits. During the geothermal well sampling event, the Sonoma Mission Inn staff indicated that no other wells were active at the site besides the deep mineral water well. On April 21, 2004, the Sonoma Mission Inn Facilities Manager submitted a letter to the SCDHS-EHD confirming the absence of any commercial bottling well or any other active wells, besides the deep geothermal well.

In June 2004, BAI submitted a workplan titled "Workplan for Further Site Investigation" to evaluate if any residual on and off-site soil or groundwater contamination remained. The proposed scope of work consisted of five borings, three on-site borings and two off-site borings. A transmittal of the results of the on-site drilling phase was submitted to the SCDHS-EHD on November 18, 2004. In the November 2004 correspondence, BAI recommended that the off-site drilling not be performed because there was no indication that a soil or groundwater plume of hydrocarbons extended off-site, and because several logistical complications are expected in the off-site drilling. This report presents the results of the drilling of the three on-site borings.

Summaries of the groundwater elevation data and the groundwater analytical results for the wells are included in Tables 1 and 2, respectively. The well construction details are summarized in Table 3. Tables 4 and 5 present a summary of the soil analytical results and the grab groundwater analytical data, respectively.

3.0 DRILLING AND FIELD INVESTIGATION

The purpose of the drilling and field investigation were to: (1) investigate the source of the residual petroleum hydrocarbon constituents, particularly 1,2-dichloroethane (1,2-DCA) concentrations, in groundwater collected from monitoring well MW-2 and boring BB-2, (2) evaluate the extent of any residual soil and/or groundwater contamination, and (3) evaluate if the tert-butanol (TBA) reported in the grab groundwater sample collected from deep boring at BB-2 is present in any other locations.



3.1 Drilling and Soil Sampling

Prior to drilling, a LUST Drilling Permit Application was obtained from the SCDHS-EHS and Underground Service Alert was contacted to locate the underground utilities in the vicinity. Clearheart Drilling, of Santa Rosa, California, a C-57 licensed drilling contractor with a drill rig equipped with 8-inch hollow stem augers was retained to drill the borings. The borings were logged by a BAI geologist according to the Unified Soil Classification System (Appendix A). Drilling of exploratory borings BB-8 and BB-9, and boring BB-7 occurred on October 14, 2004 and October 15, 2004, respectively. Boring logs for the exploratory borings are provided in Appendix A.

Soil samples were collected during the drilling of boring BB-7 on 5-foot intervals beginning at 5 feet bgs to a total drilling depth of 45 feet bgs, with limited recovery at the sample drive at 40 feet bgs. Soil samples were collected during the drilling of boring BB-8 on 5-foot intervals beginning at 5 feet bgs to the total drilling depth of 43 feet bgs. Soil boring BB-9 was drilled to a total depth of 23.5 feet bgs, with soil samples collected on 5-foot intervals starting at 5 feet bgs. Drilling of soil boring BB-9 was completed short of the anticipated maximum drilling depth of 45 feet bgs due to the presence of impenetrable bedrock.

The field samples were screened in the field for total volatile organic compounds using a photoionization detector (PID). Selected samples were labeled and stored in a cooled ice chest until delivery. Soil samples were collected for laboratory analyses from boring BB-7 at 6 feet, 10 feet, 14.5 feet, 20.5 feet, 25 feet, 30 feet, 35 feet, and 45 feet bgs. Soil samples were collected for analyses from boring BB-8 at 6 feet, 11 feet, 16 feet, 21 feet, 26 feet, 30.5 feet, 35 feet, 40.5, and 43.5 feet bgs. Soil samples were collected for laboratory analyses from boring BB-9 at 6 feet, 11 feet, 16 feet and 20.5 feet bgs.

All soil samples were collected using a split-spoon sampler lined with brass tubes. All the soil samples were analyzed by BACE Analytical and Field Services (BAFS), a California-certified laboratory, for TPH as gasoline, BTEX, petroleum oxygenates and lead scavengers by EPA Test Methods CATPH-G and SW8260B, respectively.

All drilling equipment was steam cleaned prior to drilling and the sampling equipment was cleaned prior to each use with a laboratory detergent, followed by a de-ionized water rinse. The soil cuttings generated during drilling and the water generated during steam cleaning were placed in labeled 55-gallon drums and stored on site. Soil cuttings and water generated during the drilling will be disposed of at an appropriate landfill, after disposal arrangements can be organized. The disposal documents will be submitted to the SCDHS-EHD upon final disposal of the soil and water.



3.2 Grab Groundwater Sampling and Chemical Analyses

One grab groundwater sample was collected from boring BB-8. The grab groundwater sample was collected using a temporary well casing placed in the center of the hollow-stem augers, with a 5 foot screened interval from 38 to 43 feet bgs. Prior to sample collection, approximately 1 gallon of purged groundwater was removed from the well casing. The sample was collected using clean, disposable bailer. The grab groundwater sample collected from boring BB-8 was analyzed by BAES, for TPH as gasoline, BTEX, petroleum oxygenates and lead scavengers by EPA Test Methods CATPH-G and 8260FAB, respectively. Groundwater was not encountered in the other borings during drilling activities.

Upon completion of the sampling activities, the soil borings were backfilled to near ground surface using Portland cement/bentonite grout. The side-walls of the borings were stable, and thus it was not necessary to backfill the borings using a tremie pipe. All soil borings were sealed on the day they were drilled.

4.0 SOIL AND GROUNDWATER INVESTIGATION RESULTS

4.1 Stratigraphy

During the drilling of borings BB-7, BB-8 and BB-9, a brown sandy silty clayey gravel was encountered down to approximately 5 feet bgs. Beneath this zone, a sandy silt was observed in borings BB-7 and BB-8 to approximately 9 to 10 feet bgs. Beneath the sandy silty clayey gravel in boring BB-9 and beneath the sandy silt in borings BB-7 and BB-8 was clays with varying amounts of sand and silt, or clayey sand down to approximately 15 feet bgs.

Beneath the clayey sand or clay zone, higher permeability units either sands or gravels, were observed to the bottom in boring BB-8, and down to approximately 44 feet in boring BB-7. Boring BB-7 was terminated in a gravelly sandy clay. At boring BB-9, a sandy gravel underlain by a gravelly sand was encountered from approximately 15 to 23 feet bgs. Boring BB-9 was terminated at 23.5 feet bgs in possible volcanic bedrock. Borings BB-7 and BB-8 were drilled to approximate depths of 45 feet bgs and 43 feet bgs, respectively. The boring logs are included in Appendix A.



4.2 Groundwater Flow and Contaminant Concentrations

Cumulative depths to groundwater and calculated groundwater elevations are presented in Table 1. Based on data collected by BAI between January 1999 and August 2004, historical flow directions generally ranged from the northwest to southwest. Groundwater analytical results from the quarterly groundwater monitoring activities performed by BAI are presented in Table 2. Monitoring well MW-3 has not contained petroleum hydrocarbon constituents since BAI began sampling the well in January 1999. Monitoring well MW-4 has not contained petroleum hydrocarbon constituents during the last eight monitoring events at the site.

Groundwater samples from monitoring well MW-2 has contained only low levels of 1,2-DCA; no other petroleum hydrocarbon constituents have been reported above the laboratory reporting limits since BAI began sampling the well in January 1999. In Van Houten's report titled "Monitoring Well Sampling Quarterly Report No. 5" dated July 26, 1993, Table 4 presents a summary of water sample analytical results from the monitoring wells present at the time (wells MW-1 through MW-4). Van Houten's table shows that the 1,2-DCA concentrations in the groundwater samples historically collected from well MW-2 contained up to 6.8 parts per billion of 1,2-DCA in June of 1992. The analytical results of the groundwater monitoring events performed by BAI are presented in Table 2. During the groundwater monitoring activities performed in 2004, concentrations of 1,2-DCA have been 1.72 and 1.76 micrograms per liter ($\mu\text{g/l}$).

4.3 Soil Analytical Results

The analytical results of the soil samples indicate that all petroleum hydrocarbon constituent concentrations in borings BB-7 and BB-8 at all depths were below the laboratory reporting limits. The analytical results for the samples from boring BB-9 at depths of 6 feet bgs and 20.5 feet bgs also reported that all petroleum hydrocarbon constituent concentrations were below the laboratory reporting limit. The soil samples collected from boring BB-9 at depths of 11 feet bgs and 16 feet bgs contained TPH as gasoline at 57 milligrams per kilogram (mg/kg) and 1.4 mg/kg, respectively. The soil sample from boring BB-9 at a depth of 11 feet bgs also contained 28.9 micrograms per kilograms ($\mu\text{g/kg}$) of ethylbenzene. The soil sample from boring BB-9 also contained ethylbenzene and xylenes at 248 $\mu\text{g/kg}$ and 480 $\mu\text{g/kg}$, respectively. No other petroleum hydrocarbon constituents were reported above the laboratory reporting limits in the soil sample from boring BB-9.



4.4 Grab Groundwater Analytical Results

The analytical results of the grab groundwater sample collected from boring BB-8 reported no petroleum hydrocarbon constituents above the laboratory reporting limits.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Only low levels of petroleum hydrocarbons were observed in two soil samples from boring BB-9. The analytical results of the soil and groundwater investigation did not show the presence of 1,2-DCA or tert-butanol in any of the soil samples or the grab groundwater sample collected from boring BB-8. Groundwater was not encountered during drilling of borings BB-7 and BB-9. Based on the analytical results presented herein, BAI does not recommend that the two previously proposed off-site borings (BB-5 and BB-6) be drilled at this time because there is no indication that a soil or groundwater plume extends off-site.

The main issues that have precluded no further action at this site are documented in the SCDHS-EHD correspondences dated August 15, 2002 and November 3, 2003. Based on a review of the SCDHS-EHD correspondences, the main issues of concern appear to be: (1) lack of sufficient groundwater data subsequent to the excavation activities, (2) the presence of tert-butanol (TBA) at 250 µg/l in the grab groundwater sample collected in boring BB-2 at 35 feet bgs, (3) the continued presence of low levels of 1,2-DCA in monitoring well MW-2, and (4) the potential that the Sonoma Mission Inn's property contained a commercial water bottling plant.

In the August 2002 correspondence, the SCDHS-EHD expressed concern that insufficient groundwater data existed subsequent to the excavation activities. Since August 2002, seven additional groundwater monitoring events have been performed. None of the monitoring events have shown the presence of petroleum hydrocarbon constituents above the laboratory reporting limits, except relatively low levels of 1,2-DCA reported in well MW-2 and 2.27 µg/l of MTBE reported in well MW-4 in January 1999.

During the drilling of boring BB-2 in December 2001, the grab groundwater samples reportedly contained the presence of petroleum hydrocarbons. The presence of tert-butanol (TBA) was noted to be of specific concern by the SCDHS-EHD in their August 2002 correspondence. Boring BB-8 was collected in the vicinity of the former pump island, approximately 10 feet downgradient (northwesterly) of boring BB-7. The grab groundwater sample collected from boring BB-8, from a screened area of 38 feet to 43 feet



bgs, did not contain any petroleum hydrocarbon constituents above the laboratory reporting limits. Groundwater was not encountered in boring BB-8 at a shallower depth.

Groundwater from monitoring well MW-2 contains low levels of 1,2-DCA. During the most recent groundwater monitoring event (August 2004), monitoring well MW-2 contained 1.76 µg/l. The drinking water maximum contaminant level (MCL) for 1,2-DCA is 0.5 µg/l. Concentrations of 1,2-DCA in monitoring well MW-2 have generally been stable or slightly declined during the most recent groundwater monitoring events at the site.

However, a declining trend in concentrations is observed when the analytical data collected during 1999 is included in this evaluation, as shown in the 1,2-DCA concentrations in monitoring well MW-2 verses time graph shown in Appendix C.

In regards to the SCDHS-EHD concern about the potential for a domestic well/commercial water bottling plant, the Sonoma Mission Inn Facilities Manager submitted a letter to the SCDHS-EHD on April 21, 2004 confirming the absence of any commercial bottling well or any other active wells, besides the deep geothermal well. The deep geothermal well was previously sampled by BAI, and found to contain no petroleum hydrocarbons above the laboratory reporting limits.

In summary, the analytical soil and groundwater results from the most recent drilling activities show only low levels of petroleum hydrocarbon constituents in boring BB-9, adjacent to the former excavation area. The soil samples collected at 11 and 16 feet bgs contained petroleum hydrocarbons, however, the soil samples collected above and below this zone did not contain petroleum hydrocarbons. No free groundwater was encountered during drilling of boring BB-9. The compound 1,2-DCA was not reported in any of the soil or groundwater samples collected during this investigation.

The most recent drilling indicates the absence of petroleum hydrocarbon contamination in the area downgradient of the former pump island, and downgradient of boring BB-2. The grab groundwater sample collected from the 38 to 43 foot interval of boring BB-8 did not contain any petroleum hydrocarbon constituents, specifically TBA. Based on the results of the on-site drilling, the absence of a commercial water bottling well at the Sonoma Mission Inn, and the decreasing trend in the 1,2-DCA groundwater concentrations in well MW-2, BAI recommends that this site be reviewed for no further action.



6.0 DISTRIBUTION

Copies of this document have been distributed to the following individuals and agencies:

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TABLES



TABLE 1. GROUNDWATER ELEVATION DATA

18155 Sonoma Highway
Boyes Hot Springs, California

Well Number	Date Measured	Top of Casing Elevation (Feet)	Depth to Groundwater (Feet below TOC)	Groundwater Elevation (Feet, MSL)	Groundwater Flow Direction and Gradient (ft/ft)
MW-2	8-Jan-99	134.03	13.42	120.61	Northwest 0.028
MW-3	8-Jan-99	141.09	19.19	121.90	
MW-4	8-Jan-99	133.55	11.94	121.61	
MW-2	11-May-99	134.03	10.79	123.24	Northwest 0.019
MW-3	11-May-99	141.09	16.64	124.45	
MW-4	11-May-99	133.55	9.75	123.80	
MW-2	16-Jan-02	134.03	7.91	126.12	Southwest 0.055
MW-3	16-Jan-02	141.09	12.82	128.27	
MW-4	16-Jan-02	133.55	8.90	124.65	
MW-2	18-Sep-02	134.03	25.64	108.39	--
MW-3	18-Sep-02	141.09	dry	--	
MW-4	18-Sep-02	133.55	22.40	111.15	
MW-2	12-Dec-02	134.03	23.05	110.98	--
MW-3	12-Dec-02	141.09	dry	--	
MW-4	12-Dec-02	133.55	15.46	118.09	
MW-2	13-Mar-03	134.03	10.42	123.61	Southwest 0.041
MW-3	13-Mar-03	141.09	15.13	125.96	
MW-4	13-Mar-03	133.55	10.91	122.64	
MW-2	13-Jun-03	134.03	13.53	120.50	Northwest 0.024
MW-3	13-Jun-03	141.09	20.13	120.96	
MW-4	13-Jun-03	133.55	12.14	121.41	
MW-2	30-Sep-03	134.03	24.74	109.29	--
MW-3	30-Sep-03	141.09	dry	--	
MW-4	30-Sep-03	133.55	21.78	111.77	
MW-2	5-Mar-04	134.03	7.06	126.97	--
MW-3	5-Mar-04	141.09	12.90	128.19	
MW-4 ⁽¹⁾	5-Mar-04	133.55	8.56	124.99	
MW-2	Aug-23-04	134.03	25.26	108.77	Northwest 0.129
MW-3 ⁽²⁾	Aug-23-04	141.09	22.01	119.08	
MW-4	Aug-23-04	133.55	22.32	111.23	

Cumulative data since BAI has been monitoring the site.

TOC = Top of casing surveyed to mean sea level by FitzGerald & Associates, 3/13/91 and 4/12/93.

ft/ft = Foot per foot.

MSL = Mean sea level.

⁽¹⁾Water in well did not stabilize therefore no groundwater flow direction or gradient was calculated.

⁽²⁾Equilibrium of this well may not have been complete.



TABLE 2. GROUNDWATER ANALYTICAL DATA FOR WELLS
 18155 Sonoma Highway
 Boyes Hot Springs, California

Well Number	Date Sampled	TPH as gasoline (mg/l)	TPH as diesel (mg/l)	BTEX (1) ($\mu\text{g/l}$)	MTBE (2) EPA 8260 ($\mu\text{g/l}$)	1,2-DCA (3) EPA 8260 ($\mu\text{g/l}$)	Dissolved Zinc (5) ($\mu\text{g/l}$)
MW-2	8-Jan-99	<0.05	<0.05	<0.5	<1.0	3.45	29.3
MW-2	11-May-99	<0.05	<0.05	<0.5	<0.50	3.93	56.3
MW-2	16-Jan-02	<0.05	nr	<0.50	<1.0	2.10	nr
MW-2	18-Sep-02	<0.05	nr	<0.50	<1.0	1.74	nr
MW-2	12-Dec-02	<0.05	nr	<0.50	<1.0	1.81	nr
MW-2	13-Mar-03	<0.05	nr	<0.50	<1.0	1.59	nr
MW-2	13-Jun-03	<0.05	nr	<0.50	<1.0	1.64	nr
MW-2	30-Sep-03	<0.05	nr	<0.50	<1.0	2.76	nr
MW-2	5-Mar-04	nr	nr	nr	nr	1.72	nr
MW-2	23-Aug-04	nr	nr	nr	nr	1.76	nr
MW-3	8-Jan-99	<0.05	<0.05	<0.5	<1.0	<0.50	24.7
MW-3	11-May-99	<0.05	<0.05	<0.5	<0.50	<0.50	67.7
MW-3	16-Jan-02	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-3	13-Mar-03	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-3	13-Jun-03	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	8-Jan-99	<0.05	<0.05	<0.5	2.27	<0.50	47.6
MW-4	11-May-99	<0.05	<0.05	<0.5	<0.50	<0.50	38.0
MW-4	16-Jan-02	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	18-Sep-02	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	12-Dec-02	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	13-Mar-03	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	13-Jun-03	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	30-Sep-03	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	5-Mar-04	nr	nr	nr	nr	<0.50	nr
Reporting Limit		0.050	0.05	0.50	(4)	(4)	(4)

Cumulative data since BAI has been monitoring the site.

mg/l = Milligrams per liter.

$\mu\text{g/l}$ = Micrograms per liter.

< = Not detected at specified laboratory reporting limit.

nr = Not requested.

(1) = Benzene, toluene, ethylbenzene, and xylenes.

(2) = Methyl tertiary butyl ether.

(3) = 1,2-dichloroethane. Other petroleum oxygenates and lead scavengers analyzed using EPA Test Method 8260.
 Only those listed were detected.

(4) = Reporting limits for EPA Test Method 8260 analytes and metals are presented in original laboratory reports.

(5) = Dissolved cadmium, chromium, lead, and nickel were not detected when analyzed.





TABLE 3. WELL CONSTRUCTION DETAILS
18155 Sonoma Highway
Boyes Hot Springs, California

Well Number	Date Installed	Installed By	Borehole Diameter (inches)	Total Borehole Depth (feet)	Screened Interval (feet)	Total Well Depth (feet)	Casing Diameter (inches)	Screen Slot Size (inches)	PVC Casing Elevation (MSL)	Well Condition
MW-1	28-Feb-91	Van Houten	8	33.5	18.5 to 33.5	33.5	2	0.020	—	abandoned
MW-2	28-Feb-91	Van Houten	8	42	20 to 40	40	2	0.020	134.03	existing
MW-3	1-Mar-91	Van Houten	8	22.5	12.5 to 22.5	22.5	2	0.020	141.09	existing
MW-4	19-Oct-92	Van Houten	8	23	5 to 23	23	2	0.020	133.55	existing

MSL = Mean sea level

TABLE 4. SUMMARY OF SOIL ANALYTICAL RESULTS
18155 Sonoma Highway
Boyes Hot Springs, California

Well Number	Date Sampled	Depth (feet)	TPH as gasoline (mg/kg)	TPH as diesel (mg/kg)	TPH as motor oil ^(a) (mg/kg)	Oil & Grease (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-1-Xylenes (µg/kg)	Ni (mg/kg)	Cd (mg/kg)	Cr (VI) (mg/kg)	Pb (mg/kg)	VOCs ^(b) (µg/kg)	PCBs (mg/kg)
Boring-1 (4)	5-Jun-86	7	ND	—	—	—	—	—	—	—	—	—	—	—	—
Boring-1 (4)	5-Jun-86	12	ND	—	—	—	—	—	—	—	—	—	—	—	—
Boring-2 (4)	5-Jun-86	7	530	—	—	—	—	—	—	—	—	—	—	—	—
Boring-2 (4)	5-Jun-86	12	14	—	—	—	—	—	—	—	—	—	—	—	—
Waste Oil Tank--North End	27-Oct-86	bottom	—	22	—	—	—	—	—	—	—	—	—	—	<0.1
Waste Oil Tank--Middle	27-Oct-86	bottom	—	760	—	—	—	—	—	—	—	—	—	—	<0.1
Waste Oil Tank--South End	27-Oct-86	bottom	—	320	—	—	—	—	—	—	—	—	—	—	<0.1
Tank "B"--North End	27-Oct-86	bottom	62	—	—	—	—	—	—	—	—	—	—	—	—
Tank "B"--South End	27-Oct-86	bottom	27	—	—	—	—	—	—	—	—	—	—	—	—
Tank "C"--North End	27-Oct-86	bottom	18	—	—	—	—	—	—	—	—	—	—	—	—
Tank "C"--South End	27-Oct-86	bottom	43	—	—	—	—	—	—	—	—	—	—	—	—
Tank "D"--North End	27-Oct-86	bottom	100	—	—	—	—	—	—	—	—	—	—	—	—
Tank "D"--South End	27-Oct-86	bottom	18	—	—	—	—	—	—	—	—	—	—	—	—
Tank "E"--East End	27-Oct-86	bottom	34	—	—	—	—	—	—	—	—	—	—	—	—
Tank "E"--Middle	27-Oct-86	bottom	350	—	—	—	—	—	—	—	—	—	—	—	—
Tank "E"--West End	27-Oct-86	bottom	390	—	—	—	—	—	—	—	—	—	—	—	—
Boring 1	1-Mar-91	5	1.3	ND	ND	ND	ND	18	20	0.85	ND	ND	7	16	ND
Boring 1	1-Mar-91	10	ND	ND	ND	ND	ND	ND	ND	0.97	ND	ND	5.7	18	ND
Boring 1	1-Mar-91	15	ND	ND	ND	ND	ND	ND	ND	0.66	3	ND	11	40	ND
Boring 1	1-Mar-91	20	ND	ND	ND	ND	ND	ND	ND	0.78	ND	ND	7.8	16	ND
Boring 2	1-Mar-91	5.5	ND	ND	ND	ND	ND	ND	ND	0.58	ND	ND	4.6	10	ND
Boring 2	1-Mar-91	10	ND	ND	ND	ND	ND	ND	ND	0.76	ND	ND	5.9	14	ND
Boring 2	1-Mar-91	15	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	6.5	10	ND
Boring 2	1-Mar-91	20	ND	ND	ND	ND	ND	ND	ND	0.89	ND	ND	6.3	11	ND



TABLE 4. SUMMARY OF SOIL ANALYTICAL RESULTS
18155 Sonoma Highway
Boyes Hot Springs, California

Well Number	Date Sampled	Depth (feet)	TPH as gasoline diesel (mg/kg)	TPH as motor oil (mg/kg)	Oil & Grease (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethy-Benzene (µg/kg)	Xylenes (µg/kg)	Ni (mg/kg)	Cd (mg/kg)	Cr (VI) (mg/kg)	Pb (mg/kg)	Zn (mg/kg)	VOCs ⁽³⁾ (µg/kg)	PCBs (mg/kg)	
MW-1	28-Feb-91	6	ND	99	140	ND	ND	ND	ND	0.36	ND	ND	37	35	ND	-	
MW-1	28-Feb-91	11	ND	12	ND	ND	ND	ND	ND	1.2	ND	ND	6	22	ND	-	
MW-1	28-Feb-91	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.3	11	ND	-	
MW-1	28-Feb-91	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	18	ND	-	
MW-1	28-Feb-91	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	
MW-1	28-Feb-91	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	
MW-2	28-Feb-91	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9	ND	-
MW-2	28-Feb-91	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18	ND	-
MW-2	28-Feb-91	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	-
MW-2	28-Feb-91	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND	-
MW-2	28-Feb-91	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	-
MW-2	28-Feb-91	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	-
MW-3	1-Mar-91	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	40	ND	-
MW-3	1-Mar-91	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17	ND	-
MW-3	1-Mar-91	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND	-
MW-4	1-Mar-91	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	-
MW-4	1-Mar-91	10.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.5	ND	-
West Wall #1	Apr-93	3.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.8	ND	-
South Wall #2 ⁽⁵⁾	Apr-93	3.5	140	220	980	-	1,900	ND	ND	230	110	-	-	-	-	ND	-
South Wall Bottom #3	Apr-93	8.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
West Wall Bottom #4	Apr-93	9.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
North Wall #5	Apr-93	6.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
East Wall #6 ⁽⁵⁾	Apr-93	8.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
East Wall Bottom #7 ⁽⁵⁾	Apr-93	15.0	1.5	4	35	-	ND	ND	ND	9.7	12	-	-	-	-	ND	-
Bottom #8 ⁽⁶⁾	Apr-93	20.0	2.2	2.8	ND	-	24	4.4	13	18	-	-	-	-	-	ND	-
South Wall #9	Apr-93	4.5	ND	ND	-	-	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
BB-1	20-Dec-01	8	ND	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND	-	1.58 ^(a)	-
BB-2	21-Dec-01	9	ND	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
BB-2	21-Dec-01	14	ND	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
BB-3	21-Dec-01	9	ND	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-
BB-4	20-Dec-01	8.5	ND	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	-



TABLE 4. SUMMARY OF SOIL ANALYTICAL RESULTS
18155 Sonoma Highway
Boyes Hot Springs, California

Well Number	Date Sampled	Depth (feet)	TPH as gasoline (mg/kg)	TPH as diesel (mg/kg)	Oil & Grease (mg/kg)	motor oil ⁽¹⁾ (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-Benzene (µg/kg)	Xylenes (µg/kg)	Ni (mg/kg)	Cd (mg/kg)	Cr (VI) (mg/kg)	Pb (mg/kg)	Zn (mg/kg)	VOCs ⁽²⁾ (µg/kg)	PCBs (mg/kg)
BB-7	15-Oct-04	6	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-7	15-Oct-04	10	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-7	15-Oct-04	14.5	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-7	15-Oct-04	20.5	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-7	15-Oct-04	25	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-7	15-Oct-04	30	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-7	15-Oct-04	35	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-7	15-Oct-04	45	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	6	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	11	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	16	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	21	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	26	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	30.5	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	35	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	40.5	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-8	14-Oct-04	43.5	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-9	14-Oct-04	6	<1.0	-	-	-	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	<5.0 to <50	--
BB-9	14-Oct-04	11	57	-	-	-	<20	<20	<20	<20	-	-	-	-	-	<20 to <200	--
BB-9	14-Oct-04	16	1.4	-	-	-	<50	<50	<50	<50	248	480	-	-	-	<50 to <500	--
BB-9	14-Oct-04	20.5	<1.0	-	-	-	<10	<10	<10	<10	-	-	-	-	-	<10 to <100	--

Data collected prior to 2001 collected by previous consultants. References include Van Houten's reports titled, "Discharge Evaluation for Removal of Buried Fuel Tanks", dated December 22, 1986, "Initial Hydrogeologic Investigation 1 dated April 15, 1991, "Quarterly Groundwater Sampling and Downgradient Hydrogeologic Investigation", dated April 30, 1993, and "Soil Excavation", dated June 14, 1993. Data collected during April 1993 was sampled on April 14, 15, 16, 20, 21, 22, 27, or 30, 1993, as reported in Van Houten's report titled, "Soil Excavation," dated June 14, 1993.

TPH = Total petroleum hydrocarbons

Ni = Nickel

Cd = Cadmium

Cr (VI) = Hexavalent chromium

Pb = Lead (total and /or organic)

Zn = Zinc

VOCs = Volatile organic compounds or chlorinated hydrocarbons

PCBs = Polychlorinated Biphenyls

mg/kg = Milligrams per Kilogram

µg/kg = Micrograms per Kilogram

ND = Not detected above laboratory reporting limits

-- = Not analyzed

Oil and Grease analyses were non polar

⁽¹⁾TPH as motor oil or Total Heavy Hydrocarbons

⁽²⁾Trichlorofluoromethane

⁽³⁾Includes 1,2-DCA analyses. Samples collected in 2001 and 2004 were analyzed for petroleum oxygenates and lead scavengers only, none were detected.
a=complete list of analyses unknown.

b=These areas were subsequently excavated to remove contaminated soils, as stated in Van Houten's report titled "Soil Excavation", dated June 14, 1993.

c=excavation was at the limit of equipment and excavation stability, as stated in Van Houten's report titled "Soil Excavation", dated June 14, 1993.





TABLE 5. GRAB GROUNDWATER ANALYTICAL DATA
18155 Sonoma Highway
Boyes Hot Springs, California

Boring Number	Sample Depth (feet bgs)	Date Sampled	TPH as gasoline (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Xylenes (µg/l)	MTBE (1) EPA 8260B (µg/l)	1,2-DCA (2) EPA 8260B (µg/l)	Tert-butanol (µg/l)
BB-1	20	20-Dec-01	<0.05	<0.50	<0.50	<0.50	<0.50	<1.00	1.06	<10
BB-1	45	20-Dec-01	<0.05	<0.50	<0.50	<0.50	<0.50	<1.00	<0.50	<10
BB-2	25	21-Dec-01	5.2	189	42.2	106	45.6	11.4	2.58	<10
BB-2	35	21-Dec-01	0.56	<0.50	<0.50	<0.50	0.810	2.04	1.18	250
BB-3	25	21-Dec-01	<0.05	2.61	3.50	0.73	2.19	4.87	0.94	<10
BB-4	18	20-Dec-01	0.28	<0.50	<0.50	<0.50	<0.50	1.60	<0.50	<10
BB-8	43	14-Oct-04	<0.050	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<10
SPA (3)	na	21-Dec-01	<0.050	<0.50	<0.50	<0.50	<0.50	<1.00	<0.50	<10

mg/l = milligrams per liter
 µg/l = micrograms per liter

<0.50 = Not reported at or above the specified laboratory reporting limit.

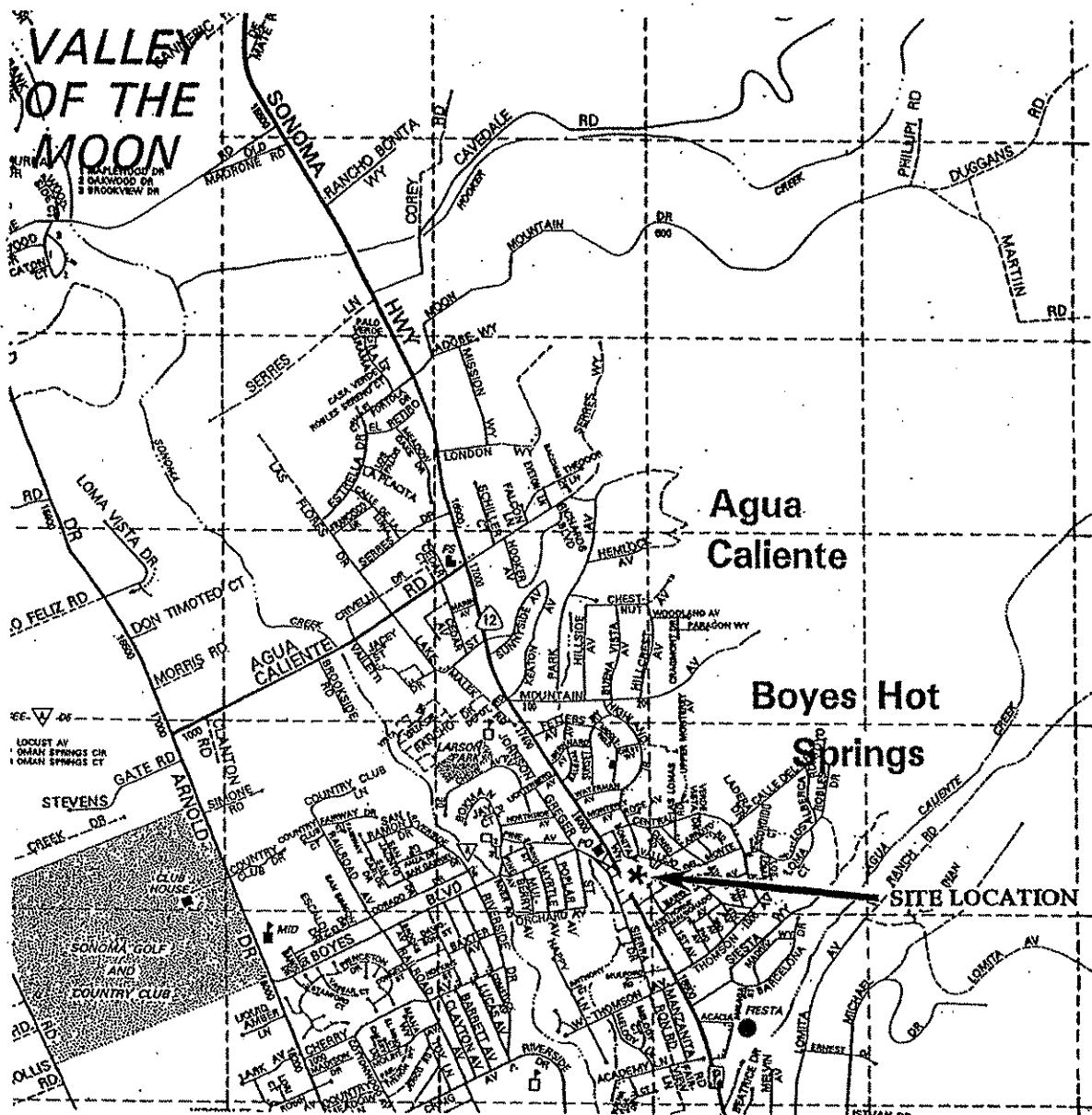
(1) = Methyl tertiary butyl ether. Other petroleum oxygenates and lead scavengers analyzed for by EPA Test Method 8260B were not detected unless listed.

(2) = 1,2-dichloroethane.

(3) = Water sample collected directly from Sonoma Mission Inn Spa outflow pipe.

PLATES





APPROXIMATE SCALE

(miles)

0 4.5 9 18

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Association



Brunsing Associates, Inc.
5803 Skylane Blvd., Suite A
Windsor, California 95492
Tel: (707) 838-3027

Job No.: 617.003

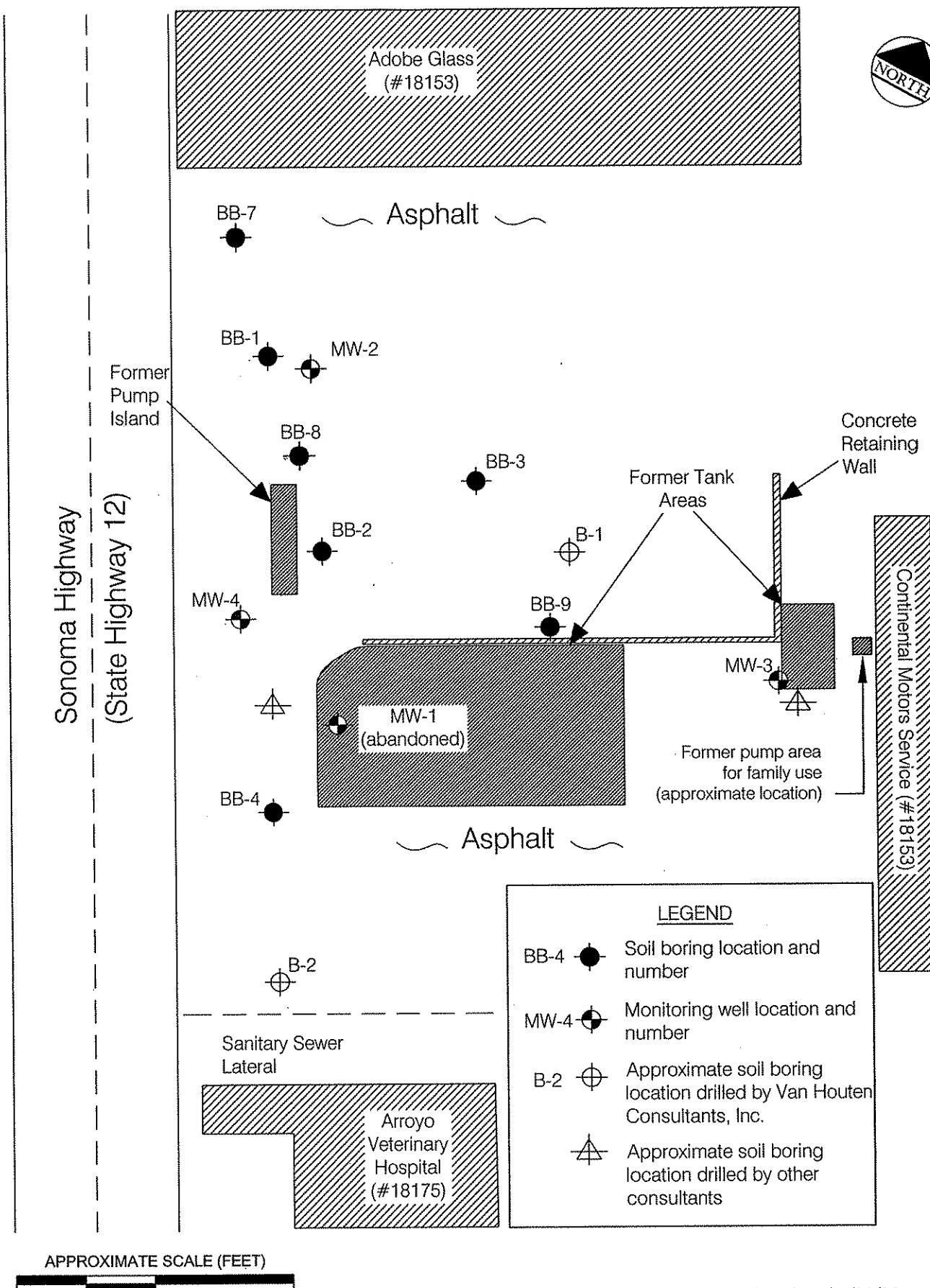
Appr.: *MET*

Date: 05/13/03

SITE VICINITY MAP
18155 Sonoma Highway
Boyes Hot Springs, California

PLATE

1



Reference: Van Houton Site Plan dated 4/30/93

APPENDIX A

Boring Logs



UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	Poorly-Graded Sands, Gravelly Sand, Little or No Fines
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
	FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
		SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

RELATIVE CONSISTENCY CLASSIFICATION

GRANULAR	COHESIVE	Relative Moisture Contents
Silts, Sands, and Gravels VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	Clays and Clayey Silts SOFT MEDIUM STIFF STIFF VERY STIFF HARD	DRY DAMP MOIST WET SATURATED

- Undisturbed sample retained

- Recovered, not retained

- Bulk Sample

- Depth to water



Brunsing Associates, Inc.
5803 Skylane Blvd., Suite A
Windsor, California 95492
Tel: (707) 838-3027

Job No.: 617

Appr.: *DML*
Date: 12/15/04

UNIFIED SOIL CLASSIFICATION CHART

18155 Sonoma Highway
Boyes Hot Springs, California

PLATE
A-1

BRUNSWICK ASSOCIATES, INC.
P.O. BOX 588
Windsor, CA. 95492
Telephone: (707) 838-3027
Fax: (707) 838-4420

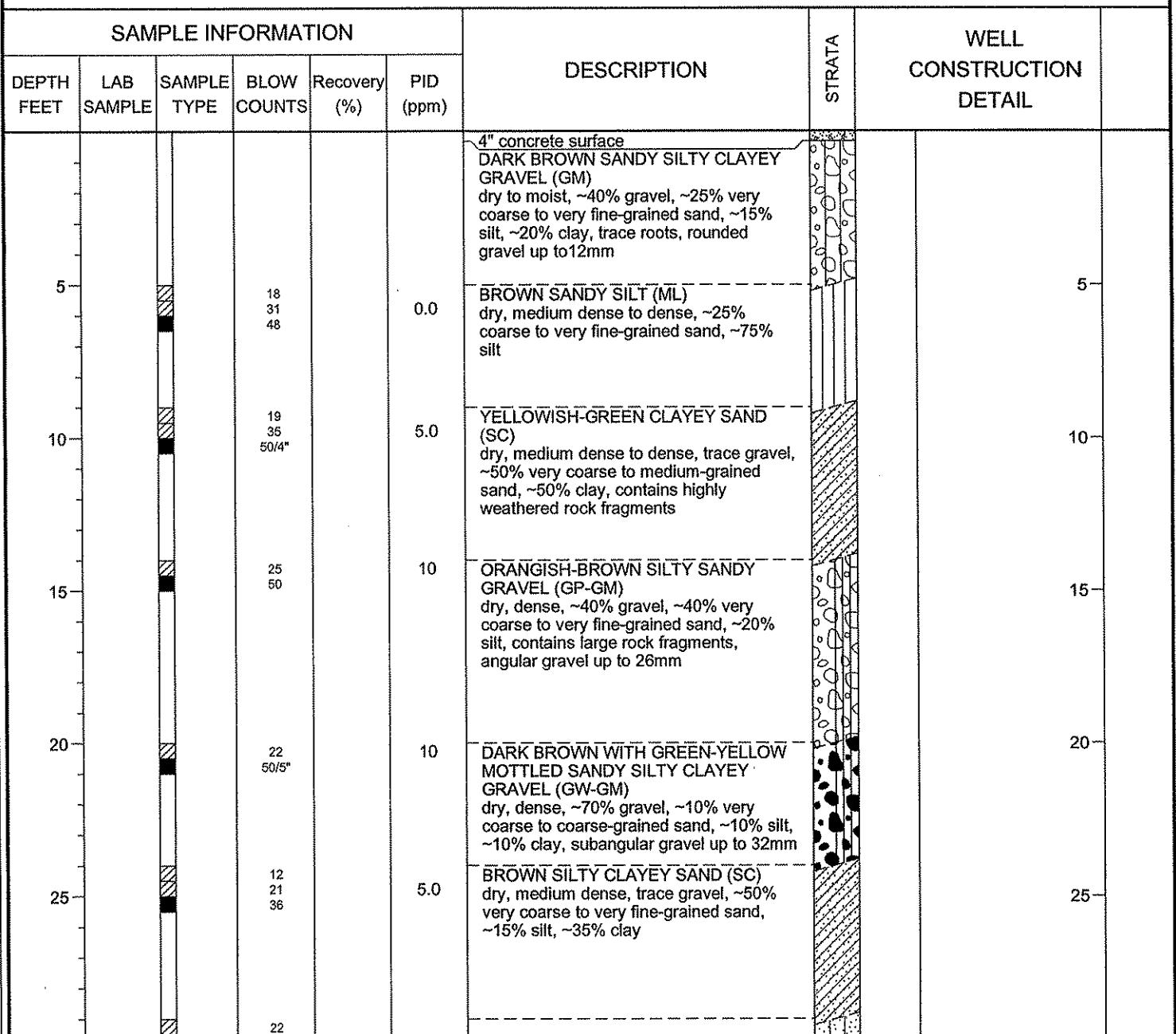
COORDINATES:
SURFACE ELEVATION:

DATUM:

BORING NO.: BB-7

SHEET 1 OF 2

PROJECT: 18155 Sonoma Highway
LOCATION: Boyes Hot Springs, California
PROJECT NO.: 617
LOGGED BY: SMS



DRILLING CONTRACTOR: Clear Heart

DRILLING METHOD: 8-inch hollow stem auger

DRILLING EQUIPMENT: C-57

DRILLING STARTED: 10/15/04 ENDED: 10/15/04

REMARKS

See key sheet for symbols and abbreviations used above.



BRUNSWICK ASSOCIATES, INC.

Job No.: 617

Appr.: *RMD*

Date: 12/23/04

LOG OF BORING BB-7

18155 Sonoma Highway

Boyes Hot Springs, California

PLATE

A-2

BRUNSWING ASSOCIATES, INC.
P.O. BOX 588
Windsor, CA. 95492
Telephone: (707) 838-3027
Fax: (707) 838-4420

COORDINATES:

SURFACE ELEVATION:

DATUM:

BORING NO.: BB-7

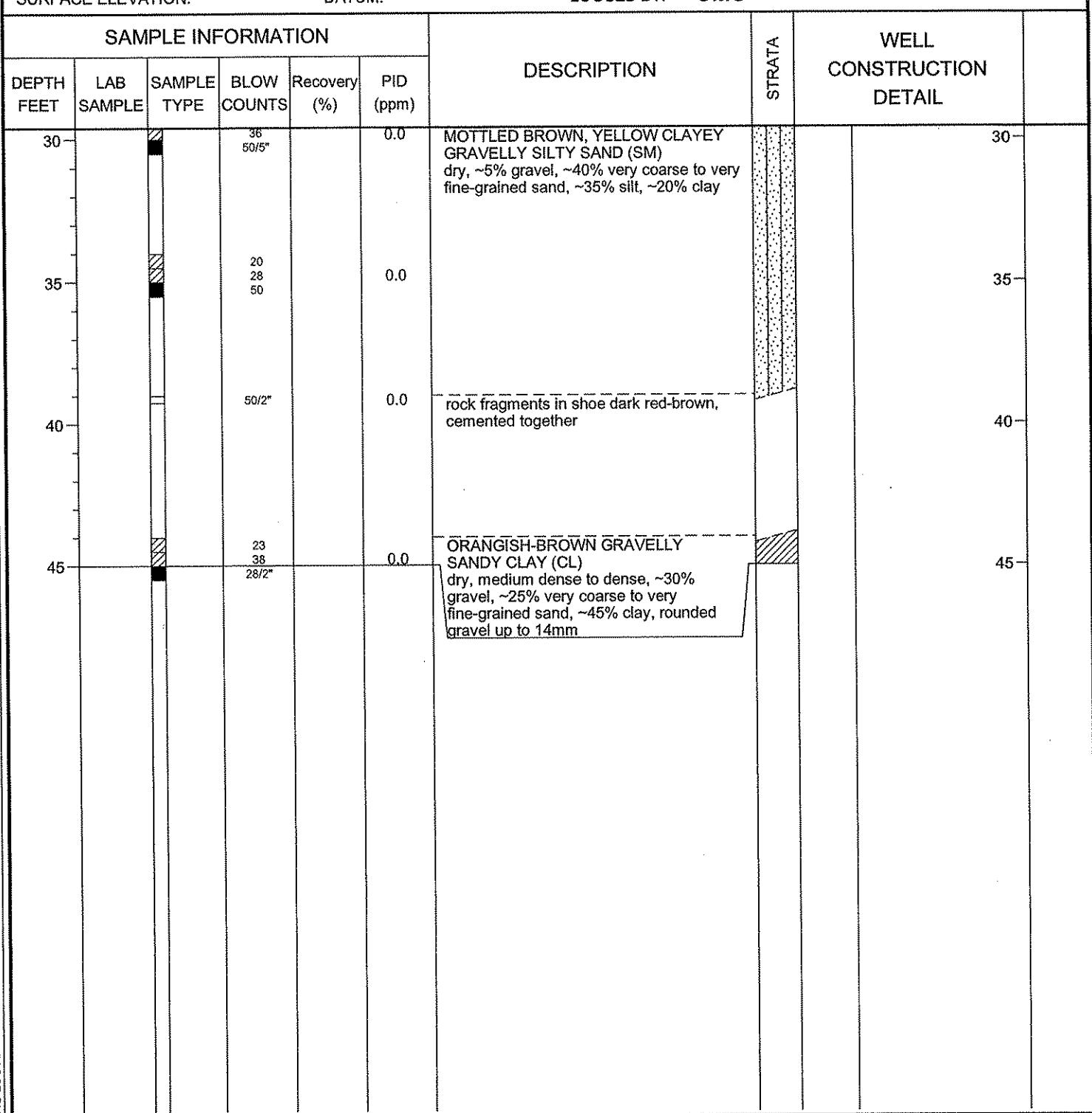
SHEET 2 OF 2

PROJECT: 18155 Sonoma Highway

LOCATION: Boyes Hot Springs, California

PROJECT NO.: 617

LOGGED BY: SMS



BRUNSWING ASSOCIATES, INC.

Job No.: 617

Appr.: *DMJ*

Date: 12/23/04

LOG OF BORING BB-7

18155 Sonoma Highway

Boyes Hot Springs, California

PLATE

A-2

BRUNSING ASSOCIATES, INC.
P.O. BOX 588
Windsor, CA. 95492
Telephone: (707) 838-3027
Fax: (707) 838-4420

COORDINATES:

SURFACE ELEVATION:

DATUM:

BORING NO.: BB-8

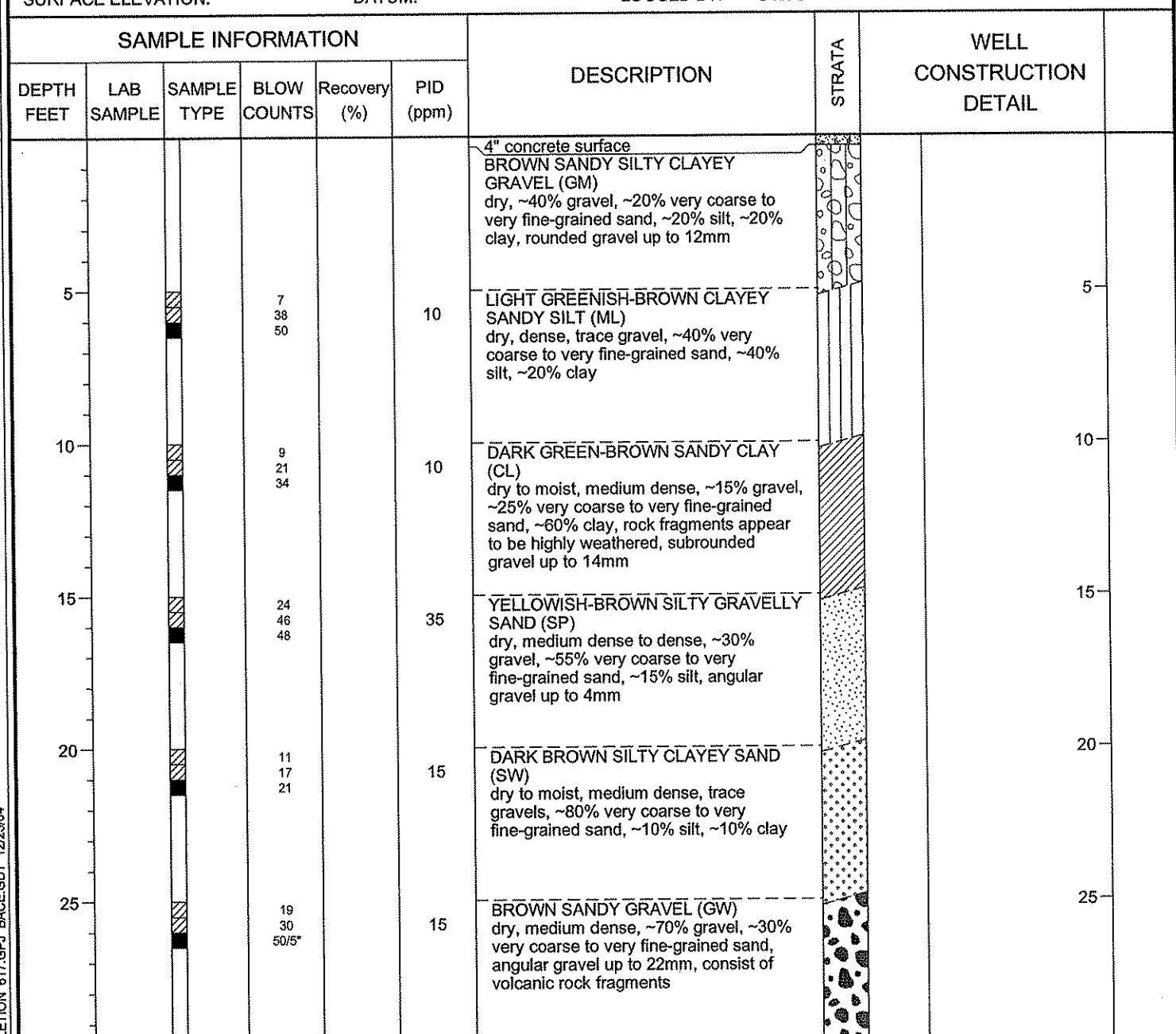
SHEET 1 OF 2

PROJECT: 18155 Sonoma Highway

LOCATION: Boyes Hot Springs, California

PROJECT NO.: 617

LOGGED BY: SMS



DRILLING CONTRACTOR: Clear Heart

DRILLING METHOD: 8-inch hollow stem auger

DRILLING EQUIPMENT: C-57

DRILLING STARTED: 10/14/04 ENDED: 10/14/04

REMARKS

See key sheet for symbols and abbreviations used above.



BRUNSING ASSOCIATES, INC.

Job No.: 617

Appr.: *RML*

Date: 12/23/04

LOG OF BORING BB-8

18155 Sonoma Highway

Boyes Hot Springs, California

PLATE

A-3

BRUNSWING ASSOCIATES, INC.
P.O. BOX 588
Windsor, CA. 95492
Telephone: (707) 838-3027
Fax: (707) 838-4420

COORDINATES:

SURFACE ELEVATION:

DATUM:

BORING NO.: BB-8

SHEET 2 OF 2

PROJECT: 18155 Sonoma Highway

LOCATION: Boyes Hot Springs, California

PROJECT NO.: 617

LOGGED BY: SMS

SAMPLE INFORMATION						DESCRIPTION	STRATA	WELL CONSTRUCTION DETAIL
DEPTH FEET	LAB SAMPLE	SAMPLE TYPE	BLOW COUNTS	Recovery (%)	PID (ppm)			
30			39 50		30	BROWN GRAVELLY SILTY SAND (SP) dry, dense, ~15% gravel, ~60% very coarse to very fine-grained sand, ~25% silt, subrounded gravel up to 8mm		30
35			50/5"		35	BROWN SILTY SANDY GRAVEL (GP-GM) dry, dense to very dense, ~50% gravel, ~30% very coarse to very fine-grained sand, ~20% silt, angular gravel up to 28mm		35
40			35 50		35	LIGHT YELLOWISH-GREEN GRAVELLY SILTY SAND (SP) moist to wet, medium dense to dense, ~10% gravel, ~75% very coarse to medium-grained sand, ~15% silt, rounded gravel up to 12mm		40
			20 42		25	BROWNISH-GREEN SILTY GRAVELLY SAND (SW) wet, medium dense to dense, ~15% gravel, ~70% very coarse to very fine-grained sand, ~15% silt, subangular gravel up to 10mm		



BRUNSWING ASSOCIATES, INC.

Job No.: 617

Appr.:

Date: 12/23/04

LOG OF BORING BB-8
18155 Sonoma Highway

Boyes Hot Springs, California

PLATE

A-3

BRUNSWICK ASSOCIATES, INC.
P.O. BOX 588
Windsor, CA. 95492
Telephone: (707) 838-3027
Fax: (707) 838-4420

COORDINATES:

SURFACE ELEVATION:

DATUM:

BORING NO.: BB-9

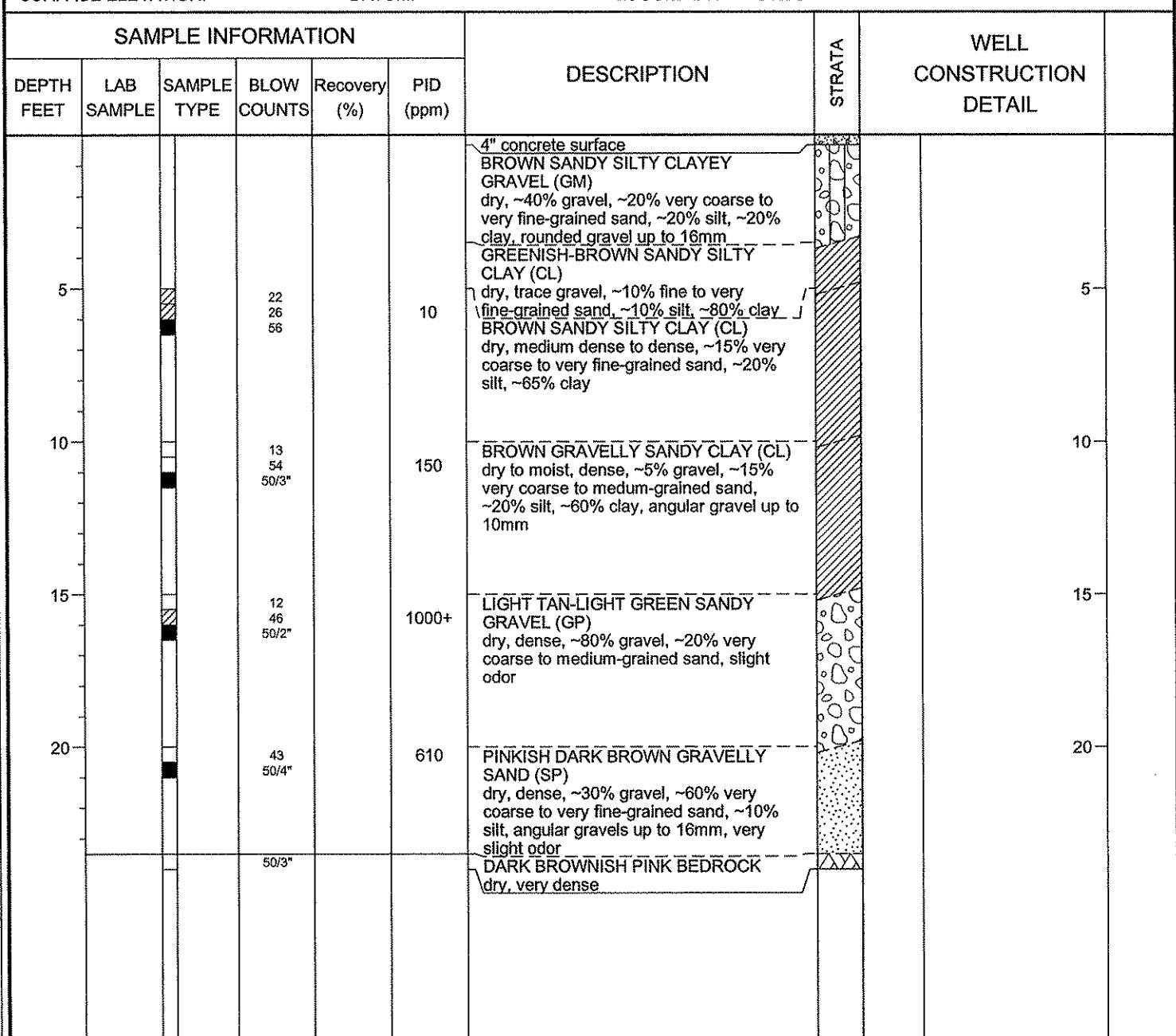
SHEET 1 OF 1

PROJECT: 18155 Sonoma Highway

LOCATION: Boyes Hot Springs, California

PROJECT NO.: 617

LOGGED BY: SMS



DRILLING CONTRACTOR: Clear Heart

DRILLING METHOD: 8-inch hollow stem auger

DRILLING EQUIPMENT: C-57

DRILLING STARTED: 10/14/04 ENDED: 10/14/04

REMARKS

See key sheet for symbols and abbreviations used above.



BRUNSWICK ASSOCIATES, INC.

Job No.: 617

Appr.: *DMO*

Date: 12/23/04

LOG OF BORING BB-9

18155 Sonoma Highway

Boyes Hot Springs, California

PLATE

A-4

APPENDIX B

Analytical Laboratory Report



Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotct	Run Sub
4438	BB-8-21.0	4438-8	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	20041019A	19	
4438	BB-8-21.0	4438-8	SO	CS	CATPH-G	SW5035	4	4	4	4	
4438	BB-8-26.0	4438-9	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	10192004A	13	
4438	BB-8-26.0	4438-9	SO	CS	CATPH-G	SW5035	4	4	4	4	
4438	BB-8-30.5	4438-10	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	10192004A	14	
4438	BB-8-30.5	4438-10	SO	CS	CATPH-G	SW5035	4	4	4	4	
4438	BB-8-35.0	4438-11	SO	CS	8260FAB	SW5035	4	4	4	4	
4438	BB-8-35.0	4438-11	SO	CS	CATPH-G	SW5035	10/14/200	10/19/200	10192004A	15	
4438	BB-8-40.5	4438-12	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	20041019A	22	
4438	BB-8-40.5	4438-12	SO	CS	CATPH-G	SW5035	4	4	4	4	
4438	BB-8-43.5	4438-13	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	10192004A	17	
4438	BB-8-43.5	4438-13	SO	CS	CATPH-G	SW5035	4	4	4	4	
4438	BB-8-6.0	4438-5	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	20041019A	24	
4438	BB-8-6.0	4438-5	SO	CS	CATPH-G	SW5035	4	4	4	4	
4438	BB-8-GW	4438-14	W	CS	8260FAB	SW5030B	10/14/200	10/19/200	10192004A	8	
4438	BB-8-GW	4438-14	W	CS	CATPH-G	SW5030B	4	4	4	4	
4438	BB-9-11.0	4438-2	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	10192004A	20	
4438	BB-9-11.0	4438-2	SO	CS	CATPH-G	SW5035	4	4	4	4	
4438	BB-9-16.0	4438-3	SO	CS	8260FAB	SW5035	10/14/200	10/19/200	20041019A	14	
4438	BB-9-16.0	4438-3	SO	CS	8260FAB	SW5035	4	4	4	4	

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anicode	Exicode	Logdate	Exidate	Anadate	Labilotct	Run Sub
4438	BB-9-16.0	4438-3	SO CS	CATPH-G	SW5035	10/14/200	10/19/200	10/19/200	10192004A	4	
4438	BB-9-20.5	4438-4	SO CS	8260FAB	SW5035	4	4	4	4		
4438	BB-9-20.5	4438-4	SO CS	CATPH-G	SW5035	10/14/200	10/19/200	10/19/200	2004/1019A	15	
4438	BB-9-6.0	4438-1	SO CS	8260FAB	SW5035	4	4	4	4		
4438	BB-9-6.0	4438-1	SO CS	CATPH-G	SW5035	10/14/200	10/19/200	10/19/200	10192004A	7	
4438-1	SO NC	8260FAB	SW5035	/ /		10/19/200	10/19/200	10/19/200	2004/1019A	12	
4438-1	W NC	8260FAB	SW5035	/ /		10/19/200	10/19/200	10/19/200	2004/1019A	12	
4440-9	SO LB1	8260FAB	SW5035	/ /		10/21/200	10/21/200	10/21/200	2004/1021C	28	
4438MB	SO LB1	CATPH-G	SW5035	/ /		4	4	4	4		
4438MB	W LB1	8260FAB	SW5035	/ /		10/19/200	10/19/200	10/19/200	2004/1019A	1	
4438MB	W LB1	CATPH-G	SW5035	/ /		4	4	4	4		
4438MB	SO LB2	8260FAB	SW5035	/ /		10/22/200	10/22/200	10/22/200	2004/1021C	25	
4438MS	SO MS1	8260FAB	SW5035	/ /		4	4	4	4		
4438MS	SO MS1	CATPH-G	SW5035	/ /		10/19/200	10/19/200	10/19/200	2004/1019A	6	
4438MS	W MS1	8260FAB	SW5035	/ /		4	4	4	4		
4438MS	W MS1	CATPH-G	SW5035	/ /		10/19/200	10/19/200	10/19/200	10192004A	11	
4438SD	SO SD1	8260FAB	SW5035	/ /		4	4	4	4		
4438SD	SO SD1	CATPH-G	SW5035	/ /		10/19/200	10/19/200	10/19/200	10192004A	12	
4438SD	W SD1	8260FAB	SW5035	/ /		4	4	4	4		

Report Summary

LakeReport	SampID	LabSampID	Matrix	QC	AnmCode	ExmCode	LogDate	ExitDate	AnaDate	LabIDCiti	Run Sub
	4438SD		W	SD1	CATPH-G	SW5030B	/ /	4	4	10/19/200	10/19/2000
	4438SD		SO	SD2	8260FAB	SW5035	/ /	4	4	10/21/200	20041021C

Bace Analytical, Windsor, CA

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-10.0	Lab Samp ID:	4438-16			
Descr/Location:	BB-7-10.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	0855	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		100%		1
Toluene-d8	81-117	SLSA		104%		1
Dibromofluoromethane	80-120	SLSA		93%		1

Approved by: _____

*Wesley H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-14.5	Lab Samp ID:	4438-17			
Descr/Location:	BB-7-14.5	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	0914	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		102%		1
Toluene-d8	81-117	SLSA		101%		1
Dibromofluoromethane	80-120	SLSA		96%		1

Approved by: _____

*Wallyn A. Peltz*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-20.5	Lab Samp ID:	4438-18			
Descr/Location:	BB-7-20.5	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	0930	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		102%		1
Toluene-d8	81-117	SLSA		103%		1
Dibromofluoromethane	80-120	SLSA		97%		1

Approved by: _____

William H. Ratz

Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-25.0	Lab Samp ID:	4438-19			
Descr/Location:	BB-7-25.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	0945	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		102%		1
Toluene-d8	81-117	SLSA		104%		1
Dibromofluoromethane	80-120	SLSA		97%		1

Approved by: _____

*William H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-30.0	Lab Samp ID:	4438-20			
Descr/Location:	BB-7-30.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	1004	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		99%		1
Toluene-d8	81-117	SLSA		99%		1
Dibromofluoromethane	80-120	SLSA		95%		1

Approved by: _____

William H. Petty

Date: 11/15/04

Bace Analytical, Windsor, CA

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-35.0	Lab Samp ID:	4438-21			
Descr/Location:	BB-7-35.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	1022	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		100%		1
Toluene-d8	81-117	SLSA		101%		1
Dibromofluoromethane	80-120	SLSA		96%		1

Approved by: Walter H. Pote Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-45.0	Lab Samp ID:	4438-22			
Descr/Location:	BB-7-45.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	1108	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		102%		1
Toluene-d8	81-117	SLSA		101%		1
Dibromofluoromethane	80-120	SLSA		95%		1

Approved by: _____

*William H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-7-6.0	Lab Samp ID:	4438-15			
Descr/Location:	BB-7-6.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/21/2004			
Sample Time:	0845	Analysis Date:	10/21/2004			
Matrix:	Soil	QC Batch:	20041021C			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		102%		1
Toluene-d8	81-117	SLSA		105%		1
Dibromofluoromethane	80-120	SLSA		95%		1

Approved by: Wesley H. Pote Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-11.0	Lab Samp ID:	4438-6			
Descr/Location:	BB-8-11.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1150	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		107%		1
Toluene-d8	81-117	SLSA		99%		1
Dibromofluoromethane	80-120	SLSA		100%		1

Approved by:

*William H. Ratz*Date: 11/15/04

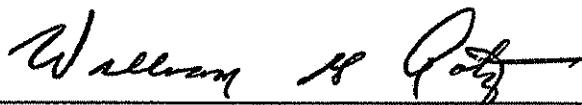
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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-16.0	Lab Samp ID:	4438-7			
Descr/Location:	BB-8-16.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1205	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		105%		1
Toluene-d8	81-117	SLSA		98%		1
Dibromofluoromethane	80-120	SLSA		101%		1

Approved by:



Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-21.0	Lab Samp ID:	4438-8			
Descr/Location:	BB-8-21.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1218	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		107%		1
Toluene-d8	81-117	SLSA		98%		1
Dibromofluoromethane	80-120	SLSA		101%		1

Approved by:

*Wesley H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-26.0	Lab Samp ID:	4438-9			
Descr/Location:	BB-8-26.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1235	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		104%		1
Toluene-d8	81-117	SLSA		99%		1
Dibromofluoromethane	80-120	SLSA		99%		1

Approved by:

*William H. Pote*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-30.5	Lab Samp ID:	4438-10			
Descr/Location:	BB-8-30.5	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1254	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		106%		1
Toluene-d8	81-117	SLSA		100%		1
Dibromofluoromethane	80-120	SLSA		99%		1

Approved by:

*Wesley H. Pote*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-35.0	Lab Samp ID:	4438-11			
Descr/Location:	BB-8-35.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1315	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		107%		1
Toluene-d8	81-117	SLSA		101%		1
Dibromofluoromethane	80-120	SLSA		102%		1

Approved by: _____

*Wesley H. Ratz*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-40.5	Lab Samp ID:	4438-12			
Descr/Location:	BB-8-40.5	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1335	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		106%		1
Toluene-d8	81-117	SLSA		100%		1
Dibromofluoromethane	80-120	SLSA		100%		1

Approved by:

*William H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-43.5	Lab Samp ID:	4438-13			
Descr/Location:	BB-8-43.5	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1355	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		106%		1
Toluene-d8	81-117	SLSA		101%		1
Dibromofluoromethane	80-120	SLSA		99%		1

Approved by:

*Wesley H. Ratz*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-8-6.0	Lab Samp ID:	4438-5			
Descr/Location:	BB-8-6.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1108	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		103%		1
Toluene-d8	81-117	SLSA		98%		1
Dibromofluoromethane	80-120	SLSA		100%		1

Approved by:

*William A. Relyea*Date: *11/15/04*

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-9-11.0	Lab Samp ID:	4438-2			
Descr/Location:	BB-9-11.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	0912	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Def Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	8.0	20.	PQL	ND	UG/KG	4
Ethyl tert-butyl ether (ETBE)	8.0	20.	PQL	ND	UG/KG	4
tert-Amyl methyl ether (TAME)	8.0	20.	PQL	ND	UG/KG	4
Di-isopropyl ether (DIPE)	8.0	20.	PQL	ND	UG/KG	4
tert-Butyl alcohol (TBA)	80.	200.	PQL	ND	UG/KG	4
1,2-Dichloroethane	10.	20.	PQL	ND	UG/KG	4
1,2-Dibromoethane	10.	20.	PQL	ND	UG/KG	4
Benzene	8.0	20.	PQL	ND	UG/KG	4
Toluene	8.0	20.	PQL	ND	UG/KG	4
Ethylbenzene	8.0	20.	PQL	28.9	UG/KG	4
Xylenes	8.0	20.	PQL	ND	UG/KG	4
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		110%		1
Toluene-d8	81-117	SLSA		97%		1
Dibromofluoromethane	80-120	SLSA		93%		1

Approved by: _____

*William H. Ratz*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-9-16.0	Lab Samp ID:	4438-3			
Descr/Location:	BB-9-16.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	0926	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	20.	50.	PQL	ND	UG/KG	10
Ethyl tert-butyl ether (ETBE)	20.	50.	PQL	ND	UG/KG	10
tert-Amyl methyl ether (TAME)	20.	50.	PQL	ND	UG/KG	10
Di-isopropyl ether (DIPE)	20.	50.	PQL	ND	UG/KG	10
tert-Butyl alcohol (TBA)	200.	500.	PQL	ND	UG/KG	10
1,2-Dichloroethane	25.	50.	PQL	ND	UG/KG	10
1,2-Dibromoethane	25.	50.	PQL	ND	UG/KG	10
Benzene	20.	50.	PQL	ND	UG/KG	10
Toluene	20.	50.	PQL	ND	UG/KG	10
Ethylbenzene	20.	50.	PQL	248.	UG/KG	10
Xylenes	20.	50.	PQL	480.	UG/KG	10
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		112%		1
Toluene-d8	81-117	SLSA		99%		1
Dibromofluoromethane	80-120	SLSA		97%		1

Approved by:

*Wesley H. Doty*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-9-20.5	Lab Samp ID:	4438-4			
Descr/Location:	BB-9-20.5	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	0940	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	4.0	10.	PQL	ND	UG/KG	2
Ethyl tert-butyl ether (ETBE)	4.0	10.	PQL	ND	UG/KG	2
tert-Amyl methyl ether (TAME)	4.0	10.	PQL	ND	UG/KG	2
Di-isopropyl ether (DIPE)	4.0	10.	PQL	ND	UG/KG	2
tert-Butyl alcohol (TBA)	40.	100.	PQL	ND	UG/KG	2
1,2-Dichloroethane	5.0	10.	PQL	ND	UG/KG	2
1,2-Dibromoethane	5.0	10.	PQL	ND	UG/KG	2
Benzene	4.0	10.	PQL	ND	UG/KG	2
Toluene	4.0	10.	PQL	ND	UG/KG	2
Ethylbenzene	4.0	10.	PQL	ND	UG/KG	2
Xylenes	4.0	10.	PQL	ND	UG/KG	2
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		107%		1
Toluene-d8	81-117	SLSA		101%		1
Dibromofluoromethane	80-120	SLSA		100%		1
DX: Value < lowest standard (MQL), but > than MDL						

Approved by:

*Wesley H. Pote*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5035			
Field ID:	BB-9-6.0	Lab Samp ID:	4438-1			
Descr/Location:	BB-9-6.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	0857	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	20041019A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		105%		1
Toluene-d8	81-117	SLSA		104%		1
Dibromofluoromethane	80-120	SLSA		98%		1

Approved by:

*Wesley H. Pote*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-7-10.0	Lab Samp ID:	4438-16			
Descr/Location:	BB-7-10.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/19/2004			
Sample Time:	0855	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene	70-130	SLSA		89%		1

Approved by:

*Wesley H. Pote*Date: 11/15/04

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-7-14.5	Lab Samp ID:	4438-17			
Descr/Location:	BB-7-14.5	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/19/2004			
Sample Time:	0914	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene	70-130	SLSA		88%		1

Approved by: Wesley H. Pote Date: 11/15/04

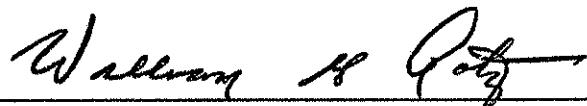
Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-7-20.5	Lab Samp ID:	4438-18			
Descr/Location:	BB-7-20.5	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/19/2004			
Sample Time:	0930	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:				108%		1
Trifluorotoluene	70-130	SLSA				

Approved by:

Date: 11/15/04

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Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-7-25.0	Lab Samp ID:	4438-19			
Descr/Location:	BB-7-25.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/19/2004			
Sample Time:	0945	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene	70-130	SLSA		83%		1

Approved by:

*Wallace H. Robt.*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-7-30.0	Lab Samp ID:	4438-20			
Descr/Location:	BB-7-30.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/19/2004			
Sample Time:	1004	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Def Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene	70-130	SLSA		81%		1

Approved by:

*William H. Pote*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-7-35.0	Lab Samp ID:	4438-21			
Descr/Location:	BB-7-35.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/19/2004			
Sample Time:	1022	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene		70-130	SLSA	84%		1

Approved by:

*Wesley H. Doty*Date: 11/15/04

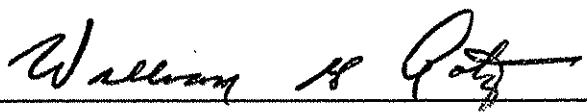
Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-7-45.0	Lab Samp ID:	4438-22
Descr/Location:	BB-7-45.0	Rec'd Date:	10/15/2004
Sample Date:	10/15/2004	Prep Date:	10/19/2004
Sample Time:	1108	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	84%
			1

Approved by:

Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-7-6.0	Lab Samp ID:	4438-15			
Descr/Location:	BB-7-6.0	Rec'd Date:	10/15/2004			
Sample Date:	10/15/2004	Prep Date:	10/19/2004			
Sample Time:	0845	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene	70-130	SLSA		93%		1

Approved by:

*Wesley H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-8-11.0	Lab Samp ID:	4438-6
Descr/Location:	BB-8-11.0	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	1150	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	78%
			1

Approved by:

*Wesley H. Ratz*Date: 11/15/04

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Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-8-16.0	Lab Samp ID:	4438-7			
Descr/Location:	BB-8-16.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1205	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:				88%		1
Trifluorotoluene	70-130	SLSA				

Approved by:

*Wesley H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-8-21.0	Lab Samp ID:	4438-8			
Descr/Location:	BB-8-21.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1218	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene	70-130	SLSA		96%		1

Approved by: Wesley H. Rote Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-8-26.0	Lab Samp ID:	4438-9
Descr/Location:	BB-8-26.0	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	1235	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	87%
			1

Approved by:

*William H. Pote*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-8-30.5	Lab Samp ID:	4438-10
Descr/Location:	BB-8-30.5	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	1254	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	96%
			1

Approved by:

*William H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-8-35.0	Lab Samp ID:	4438-11			
Descr/Location:	BB-8-35.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1315	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
Trifluorotoluene	70-130	SLSA		95%		1

Approved by:

*Wesley H. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-8-40.5	Lab Samp ID:	4438-12
Descr/Location:	BB-8-40.5	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	1335	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	91%
			1

Approved by:

*Wesley A. Ratz*Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-8-43.5	Lab Samp ID:	4438-13			
Descr/Location:	BB-8-43.5	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	1355	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:				100%		1
Trifluorotoluene	70-130	SLSA				

Approved by:

*William S. Ratz*Date: 11/15/04

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Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-8-6.0	Lab Samp ID:	4438-5
Descr/Location:	BB-8-6.0	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	1108	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	88%
			1

Approved by:

*Wesley H. Ratz*Date: 11/15/04

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Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-9-11.0	Lab Samp ID:	4438-2
Descr/Location:	BB-9-11.0	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	0912	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	20.	40.	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	110%
			1

Approved by: Wesley H. Pote Date: 11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-9-16.0	Lab Samp ID:	4438-3
Descr/Location:	BB-9-16.0	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	0926	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	105%
			1

Approved by:

Date:

11/15/04

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics
Project No:	617	Method:	CATPH-G
		Prep Meth:	SW5035
Field ID:	BB-9-20.5	Lab Samp ID:	4438-4
Descr/Location:	BB-9-20.5	Rec'd Date:	10/15/2004
Sample Date:	10/14/2004	Prep Date:	10/19/2004
Sample Time:	0940	Analysis Date:	10/19/2004
Matrix:	Soil	QC Batch:	10192004A
Basis:	Wet	Notes:	
Analyte	Det Limit	Rep Limit	Note
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL
SURROGATE AND INTERNAL STANDARD RECOVERIES:			
Trifluorotoluene	70-130	SLSA	84%
			1

Approved by: _____

*William H. Ratz*Date: 11/15/04

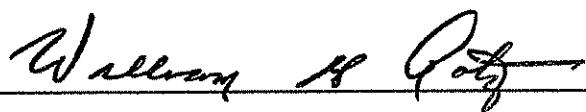
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Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	CA LUFT Method for Gasoline Range Organics			
Project No:	617	Method:	CATPH-G			
		Prep Meth:	SW5035			
Field ID:	BB-9-6.0	Lab Samp ID:	4438-1			
Descr/Location:	BB-9-6.0	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/19/2004			
Sample Time:	0857	Analysis Date:	10/19/2004			
Matrix:	Soil	QC Batch:	10192004A			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.5	1.0	PQL	ND	MG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:				74%		1
Trifluorotoluene	70-130	SLSA				

Approved by:



Date: 11/15/04

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Lab Report No.: 4438 Date: 11/15/2004

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Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	617	Method:	8260FAB			
		Prep Meth:	SW5030B			
Field ID:	BB-8-GW	Lab Samp ID:	4438-14			
Descr/Location:	BB-8-GW	Rec'd Date:	10/15/2004			
Sample Date:	10/14/2004	Prep Date:	10/21/2004			
Sample Time:	1400	Analysis Date:	10/21/2004			
Matrix:	Water	QC Batch:	20041021C			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	0.38	1.0	PQL	ND	UG/L	1
Ethyl tert-butyl ether (ETBE)	0.30	1.0	PQL	ND	UG/L	1
tert-Amyl methyl ether (TAME)	0.26	1.0	PQL	ND	UG/L	1
Di-isopropyl ether (DIPE)	0.37	1.0	PQL	ND	UG/L	1
tert-Butyl alcohol (TBA)	2.4	10.	PQL	ND	UG/L	1
1,2-Dichloroethane	0.30	0.50	PQL	ND	UG/L	1
1,2-Dibromoethane	0.30	0.50	PQL	ND	UG/L	1
Ethanol (EtOH)	100.	300.	PQL	ND	UG/L	1
Benzene	0.27	0.50	PQL	ND	UG/L	1
Toluene	0.25	0.50	PQL	ND	UG/L	1
Ethylbenzene	0.25	0.50	PQL	ND	UG/L	1
Xylenes	0.25	0.50	PQL	ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-115	SLSA	100%		1
Toluene-d8		88-110	SLSA	103%		1
Dibromofluoromethane		86-118	SLSA	100%		1

Approved by:

Wesley H. Gatz

Date:

11/15/04

QA/QC Report
Method Blank Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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QC Batch:	10192004A	Analysis:	CA LUFT Method for Gasoline Range		
Matrix:	Water	Method:	CATPH-G		
Lab Samp ID:	4438MB	Prep Meth:	SW5030B		
Analysis Date:	10/19/2004	Prep Date:	10/19/2004		
Basis:	Not Filtered	Notes:			
Analyte	Det Limit	Rep Limit	Note	Result	Units
Gasoline Range Organics (C5-C12)	0.020	0.050	PQL	ND	MG/L
SURROGATE AND INTERNAL STANDARD RECOVERIES:					
Trifluorotoluene	70-130	SLSA		91%	1

QA/QC Report

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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QC Batch:	10192004A	Analysis:	CA LUFT Method for Gasoline Range
Matrix:	Soil	Method:	CATPH-G
Lab Samp ID:	4438MB	Prep Meth:	SW5035
Analysis Date:	10/19/2004	Prep Date:	10/19/2004
Basis:	Wet	Notes:	

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary
Bace Analytical, Windsor, CA

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QC Batch: 10192004A
Matrix: Soil
Lab Samp ID: 4438MS
Basis: Wet

Project Name: 18155 SONOMA HIGHWAY
Project No.: 617
Field ID: BB-8-16.0
Lab Ref ID: 4438-7

Analyte	Analysis Method	Spike Level		Sample Result	Spike Result		Units	% Recoveries		Acceptance Criteria	
		MS	DMS		MS	DMS		MS	DMS RPD	% Rec	RPD
Gasoline Range Organics (C5-C12)	CATPH-G	2.00	2.00	ND	1.64	1.69	MG/KG	82.0	84.5	3.0	130-70 MSA 20MSP
Trifluorotoluene	CATPH-G	100.	100.	88.	105.	113.	PERCENT WW	105	113	7.3	130-70 SLSA 20SLSP

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary
Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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Project Name: 18155 SONOMA HIGHWAY						
QC Batch:	10192004A	Project No.:	617			
Matrix:	Water	Field ID:	BB-8-GW			
Lab Samp ID:	4438MS	Lab Ref ID:	4438-14			
Basis:	Not Filtered				Acceptance Criteria	
Analyte	Analysis Method	Spike Level MS	Sample Result MS	Spike Result DMS	Units	% Recoveries MS DMS RPD
Gasoline Range Organics (C5-C12)	CATPH-G	0.50	0.50	0.42	MG/L	84.0 88.0 4.7
Trifluorotoluene	CATPH-G	100.	100.	105.	PERCENT	100 103 3.0

QA/QC Report
Method Blank Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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QC Batch:	20041019A	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Matrix:	Soil	Method:	8260FAB			
Lab Samp ID:	4438MB	Prep Meth:	SW5035			
Analysis Date:	10/19/2004	Prep Date:	10/19/2004			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		101%		1
Toluene-d8	81-117	SLSA		110%		1
Dibromofluoromethane	80-120	SLSA		100%		1

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary
Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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QC Batch: 20041019A
Matrix: Soil
Lab Samp ID: 4438MS
Basis: Wet

Project Name: Lab Generated or Non COE Sample
Project No.: Lab Generated or Non COE Sample
Field ID: Lab Generated or Non COE Sample
Lab Ref ID: 4434-1

Analyte	Analysis Method	Spike Level DMS		Sample Result	Spike Result MS	Spike Result DMS	Units	% Recoveries MS DMS RPD	Acceptance Criteria		RPD
		MS	DMS						% Rec.	MSA	
1,2-Dibromoethane	8260FAB	25.0	25.0	ND	17.9	17.4	UG/GKG	WW	71.6	2.8	135-65 MSA 20MSP
1,2-Dichloroethane	8260FAB	25.0	25.0	ND	19.5	18.9	UG/GKG	WW	78.0	75.6	3.1 135-65 MSA 20MSP
Benzene	8260FAB	25.0	25.0	ND	20.4	19.9	UG/GKG	WW	81.6	79.6	2.5 142-66 MSA 20MSP
Di-isopropyl ether (DIPE)	8260FAB	25.0	25.0	ND	25.9	25.8	UG/GKG	WW	104	103	0.97 135-65 MSA 20MSP
Ethyl tert-butyl ether (ETBE)	8260FAB	25.0	25.0	ND	23.6	22.9	UG/GKG	WW	94.4	91.6	3.0 135-65 MSA 20MSP
Ethylbenzene	8260FAB	25.0	25.0	ND	18.5	18.6	UG/GKG	WW	74.0	74.4	0.54 135-65 MSA 20MSP
Methyl-tert-butyl ether (MTBE)	8260FAB	25.0	25.0	ND	22.0	20.7	UG/GKG	WW	88.0	82.8	6.1 135-65 MSA 20MSP
Toluene	8260FAB	25.0	25.0	ND	19.8	20.5	UG/GKG	WW	79.2	82.0	3.5 139-60 MSA 20MSP
Xylenes	8260FAB	75.0	75.	ND	56.1	60.1	UG/GKG	WW	74.8	80.1	6.8 135-65 MSA 20MSP
tert-Amyl methyl ether (TAME)	8260FAB	25.0	25.0	ND	21.0	19.2	UG/GKG	WW	84.0	76.8	9.0 135-65 MSA 20MSP
tert-Butyl alcohol (TBA)	8260FAB	125.	125.	ND	134.	128.	UG/GKG	WW	107	102	4.8 140-60 MSA 25MSP
4-Bromofluorobenzene	8260FAB	100.	100.	100.	95.	100.	PERCENT WW	95.0	100	5.1	121-74 SLSA 20SLSP
Dibromofluoromethane	8260FAB	100.	100.	95.	98.	96.	PERCENT WW	98.0	96.0	2.1 120-80 SLSA 20SLSP	
Toluene-d8	8260FAB	100.	100.	101.	99.	104.	PERCENT WW	99.0	104	4.9 117-81 SLSA 20SLSP	

QA/QC Report
Method Blank Summary

Bace Analytical, Windsor, CA.

Lab Report No.: 4438 Date: 11/15/2004

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QC Batch:	20041021C	Analysis: VOCs by GC/MS Fuel Additives Plus BTEX				
Matrix:	Water	Method: 8260FAB				
Lab Samp ID:	4438MB	Prep Meth: SW5030B				
Analysis Date:	10/22/2004	Prep Date: 10/22/2004				
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	0.38	1.0	PQL	ND	UG/L	1
Ethyl tert-butyl ether (ETBE)	0.30	1.0	PQL	ND	UG/L	1
tert-Amyl methyl ether (TAME)	0.26	1.0	PQL	ND	UG/L	1
Di-isopropyl ether (DIPE)	0.37	1.0	PQL	ND	UG/L	1
tert-Butyl alcohol (TBA)	2.4	10.	PQL	ND	UG/L	1
1,2-Dichloroethane	0.30	0.50	PQL	ND	UG/L	1
1,2-Dibromoethane	0.30	0.50	PQL	ND	UG/L	1
Benzene	0.27	0.50	PQL	ND	UG/L	1
Toluene	0.25	0.50	PQL	ND	UG/L	1
Ethylbenzene	0.25	0.50	PQL	ND	UG/L	1
Xylenes	0.25	0.50	PQL	ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	86-115	SLSA		101%		1
Toluene-d8	88-110	SLSA		105%		1
Dibromofluoromethane	86-118	SLSA		100%		1

QA/QC Report
Method Blank Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

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QC Batch:	20041021C	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Matrix:	Soil	Method:	8260FAB			
Lab Samp ID:	4438MB	Prep Meth:	SW5035			
Analysis Date:	10/21/2004	Prep Date:	10/21/2004			
Basis:	Wet	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	2.0	5.0	PQL	ND	UG/KG	1
Ethyl tert-butyl ether (ETBE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Amyl methyl ether (TAME)	2.0	5.0	PQL	ND	UG/KG	1
Di-isopropyl ether (DIPE)	2.0	5.0	PQL	ND	UG/KG	1
tert-Butyl alcohol (TBA)	20.	50.	PQL	ND	UG/KG	1
1,2-Dichloroethane	2.5	5.0	PQL	ND	UG/KG	1
1,2-Dibromoethane	2.5	5.0	PQL	ND	UG/KG	1
Benzene	2.0	5.0	PQL	ND	UG/KG	1
Toluene	2.0	5.0	PQL	ND	UG/KG	1
Ethylbenzene	2.0	5.0	PQL	ND	UG/KG	1
Xylenes	2.0	5.0	PQL	ND	UG/KG	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	74-121	SLSA		98%		1
Toluene-d8	81-117	SLSA		109%		1
Dibromofluoromethane	80-120	SLSA		98%		1

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

QC Batch: 20041021C
 Matrix: Soil
 Lab Samp ID: 4438MS
 Basis: Wet

Project Name: 18155 SONOMA HIGHWAY

Project No.: 617

Field ID: BB-7-6.0

Lab Ref ID: 4438-15

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Analyte	Analysis Method	Spike Level MS	Sample Result	Spike Result MS	Units	% Recoveries			Acceptance Criteria					
						MS	DMS	RPD	% Rec	RPD				
1,2-Dibromoethane	8260FAB	25.0	25.0	ND	17.7	17.9	UG/KG	WW	70.8	71.6	1.1	135-65	MSA	20MSP
1,2-Dichloroethane	8260FAB	25.0	25.0	ND	18.0	18.0	UG/KG	WW	72.0	72.0	0.00	135-65	MSA	20MSP
Benzene	8260FAB	25.0	25.0	ND	18.8	18.8	UG/KG	WW	75.2	75.2	0.00	142-66	MSA	20MSP
Di-isopropyl ether (DIPE)	8260FAB	25.0	25.0	ND	24.7	25.7	UG/KG	WW	98.8	103	4.2	135-65	MSA	20MSP
Ethyl tert-butyl ether (ETBE)	8260FAB	25.0	25.0	ND	22.6	23.6	UG/KG	WW	90.4	94.4	4.3	135-65	MSA	20MSP
Ethylbenzene	8260FAB	25.0	25.0	ND	17.9	18.0	UG/KG	WW	71.6	72.0	0.56	135-65	MSA	20MSP
Methyl-tert-butyl ether (MTBE)	8260FAB	25.0	25.0	ND	20.5	21.6	UG/KG	WW	82.0	86.4	5.2	135-65	MSA	20MSP
Toluene	8260FAB	25.0	25.0	ND	18.5	18.2	UG/KG	WW	74.0	72.8	1.6	139-60	MSA	20MSP
Xylenes	8260FAB	75.0	75.	ND	54.9	53.8	UG/KG	WW	73.2	71.7	2.1	135-65	MSA	20MSP
tert-Butyl methyl ether (TAME)	8260FAB	25.0	25.0	ND	19.1	20.2	UG/KG	WW	76.4	80.8	5.6	135-65	MSA	20MSP
tert-Butyl alcohol (TBA)	8260FAB	125.	125.	ND	131.	133.	UG/KG	WW	105	106	0.95	140-60	MSA	25MSP
4-Bromofluorobenzene	8260FAB	100.	100.	102.	98.	PERCENT	WW	102	98.0	4.0	121-74	SLSA	20SLSP	
Dibromofluoromethane	8260FAB	100.	100.	95.	96.	PERCENT	WW	96.0	98.0	2.1	120-80	SLSA	20SLSP	
Toluene-d8	8260FAB	100.	100.	105.	99.	PERCENT	WW	99.0	101	2.0	117-81	SLSA	20SLSP	

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4438 Date: 11/15/2004

QC Batch: 20041021C
 Matrix: Water
 Lab Samp ID: 4438MS
 Basis: Not Filtered

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Analyte	Analysis Method	Spike Level DMS		Sample Result MS		Spike Result DMS		Units	% Recoveries MS DMS RPD	Acceptance Criteria RPD	
		MS	DMS	Sample Result	MS	Spike Result	DMS			% Rec.	
1,2-Dibromoethane	8260FAB	10.0	10.0	ND	8.60	8.02	UG/L		86.0	80.2	130-70 MSA 20MSP
1,2-Dichloroethane	8260FAB	10.0	10.0	ND	9.49	8.97	UG/L		94.9	89.7	5.6 130-70 MSA 20MSP
Benzene	8260FAB	10.0	10.0	ND	10.1	9.54	UG/L		101	95.4	5.7 127-76 MSA 20MSP
Di-isopropyl ether (DIPE)	8260FAB	10.0	10.0	ND	9.44	9.56	UG/L		94.4	95.6	1.3 130-70 MSA 20MSP
Ethyl tert-butyl ether (ETBE)	8260FAB	10.0	10.0	ND	9.21	8.94	UG/L		92.1	89.4	3.0 130-70 MSA 20MSP
Ethylbenzene	8260FAB	10.0	10.0	ND	10.1	9.15	UG/L		101	91.5	9.9 130-70 MSA 20MSP
Methyl-tert-butyl ether (MTBE)	8260FAB	10.0	10.0	4.10	12.8	12.6	UG/L		87.0	85.0	2.3 130-70 MSA 20MSP
Toluene	8260FAB	10.0	10.0	ND	10.1	9.35	UG/L		101	93.5	7.7 125-76 MSA 20MSP
Xylenes	8260FAB	30.0	30.0	ND	30.5	29.3	UG/L		102	97.7	4.3 130-70 MSA 20MSP
tert-Amyl methyl ether (TAME)	8260FAB	10.0	10.0	ND	8.29	8.48	UG/L		82.9	84.8	2.3 130-70 MSA 20MSP
tert-Butyl alcohol (TBA)	8260FAB	50.0	50.0	ND	37.0	35.5	UG/L		74.0	71.0	4.1 140-60 MSA 25MSP
4-Bromofluorobenzene	8260FAB	100.	100.	100.	102.	97.	PERCENT		102	97.0	5.0 115-86 SLSA 20SLSP
Dibromofluoromethane	8260FAB	100.	100.	98.	98.	97.	PERCENT		98.0	97.0	1.0 118-86 SLSA 20SLSP
Toluene-d8	8260FAB	100.	100.	105.	105.	101.	PERCENT		105	101	3.9 110-88 SLSA 20SLSP

Chain-of-Custody Form

Chain-of-Custody Form

APPENDIX C

1,2-Dichloroethane Concentration vs. Time Graph



1,2-Dichloroethane (1,2-DCA) Concentration in Monitoring Well MW-2 vs. Time
18155 Sonoma Highway
Boyes Hot Springs, CA

